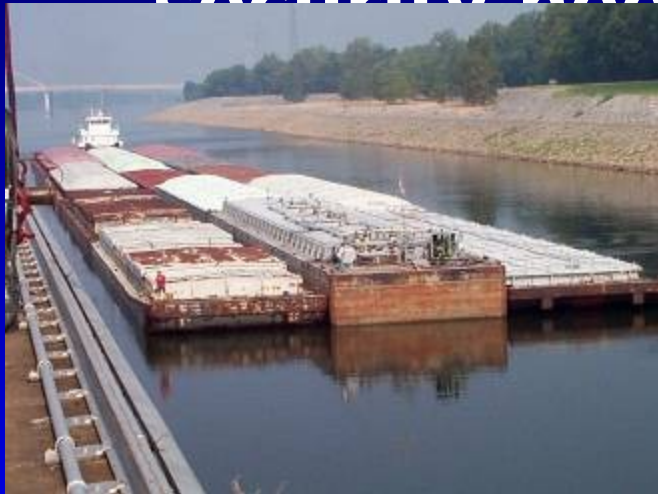


# Corps Navigation Mission

Provide  
**safe, reliable, efficient, effective and  
environmentally sustainable  
waterborne transportation systems  
for movement of commerce, national  
security needs, and recreation**



# Can Navigation be Difficult?



***000ps!***



# Workshop Background

- **Spate of Accident at Locks - Highwater Jan 2005**
  - Belleville most notable
  - Ohio River and Lower Mississippi River
- **TRB Meeting in Memphis - Craig Philip (Ingram)**
  - Highlights problem
  - Clausner suggests meeting
- **Discussions due to the efforts of Industry catalyst Scott Noble - summer/fall**
- **Late Fall - Michael Winkler (ERDC) organizer**
- **HQUSACE (Kidby) critical support**
- **Considerable Interest**



# Lock Currents Workshop

## Participating Groups

- **Corps – Navigation Mission**
  - Divisions/Districts
  - HQ
  - ERDC
- **Industry**
- **Coast Guard**
- **NOAA**



# Workshop Agenda

- **Tuesday PM**

- **Ship-Tow Simulator (STS) Demonstration - Lynch**
- **Numerical Model Demonstrations - Berger/Stockstill**
- **Outdraft Presentation - Winkler**
- **Break**
- **LRD Navigation Concerns - Morgan and Sneberger**
- **MVD Navigation Concerns - Hannon**
- **Industry Perspective - Noble**

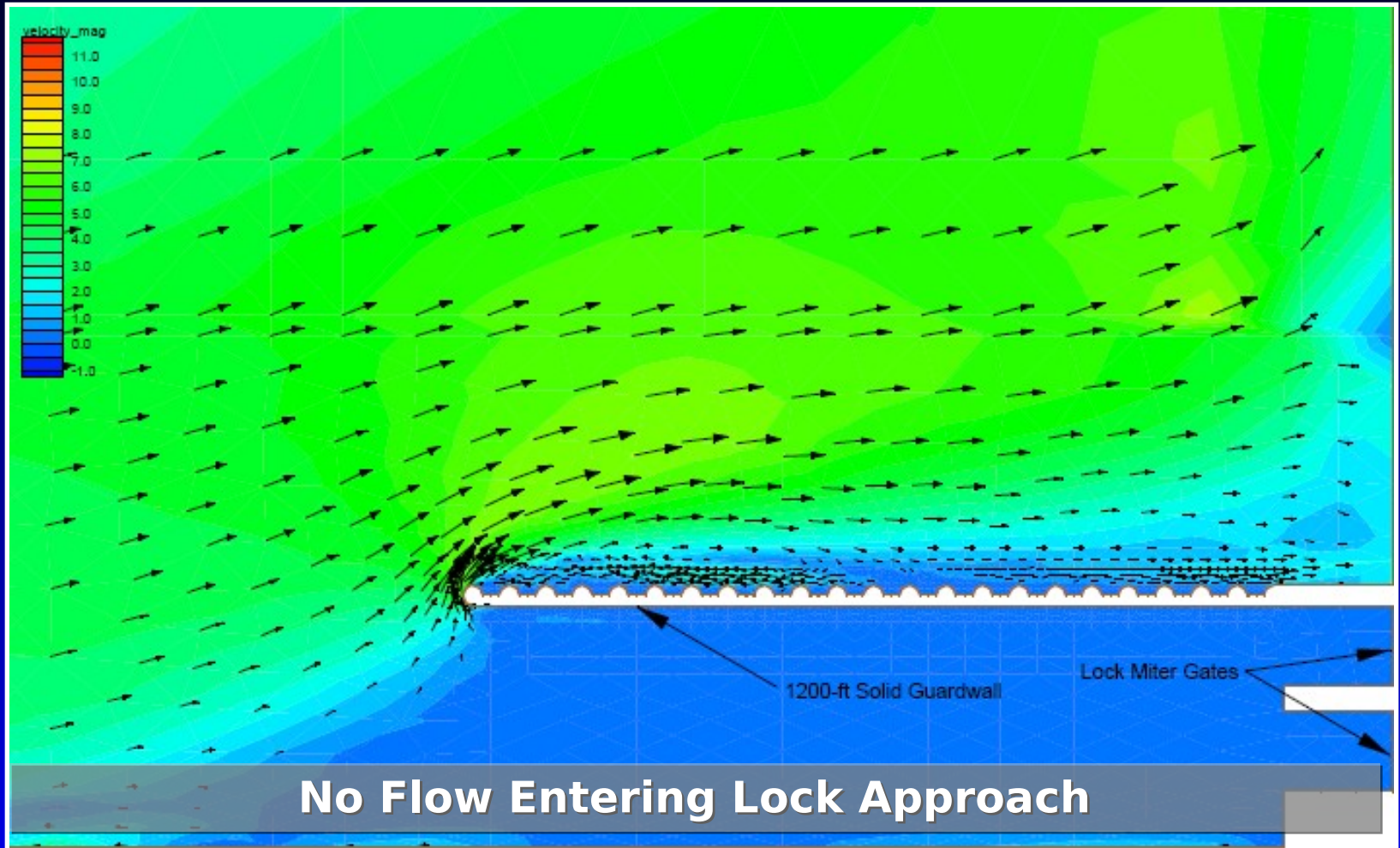


# Workshop Agenda

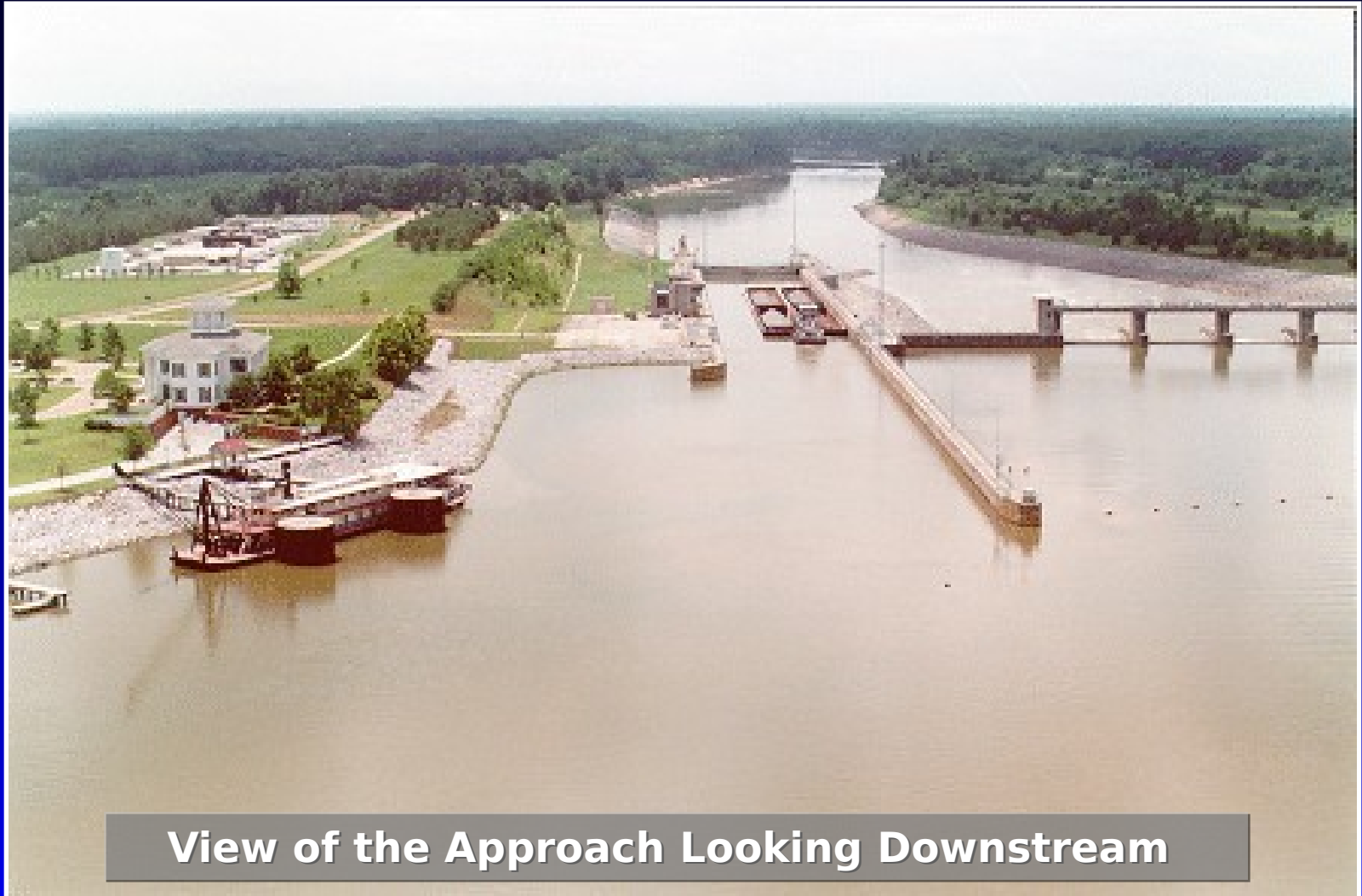
- **Wednesday AM**
  - R&D Overview (Clausner)
  - DOTS Program (Clarke)
  - Corps Role (Kidby)
  - NOAA PORTS System (Bourgerie)
  - USCG Perspective (CWO Frascella - S8 )
  - Break
  - Lock Currents Discussion
  - Planning for Future Efforts (Clausner)
  - Wrap-up (Kidby/Clausner)
  - Physical Model Tours (Winkler/McCollum)



# Outdraft



# Tom Bevill Lock and Dam



View of the Approach Looking Downstream



# MCNP Study at Bevill

- **Time Lapse Video - 2 Cameras Monitoring Upper Approach**
- **Water Level Gauges - 6 Locations on Upper Approach Wall, 3 inside and 3 outside**
- **Bathymetry Survey**
- **Multibeam Survey of Upper Approach Wall Ports**
- **Discharges of Approximately 40,000 cfs and 79,000 cfs**
  - ADCP Data Collection
  - Drogue Data Collection



# View of Time Lapse Camera - MCNP



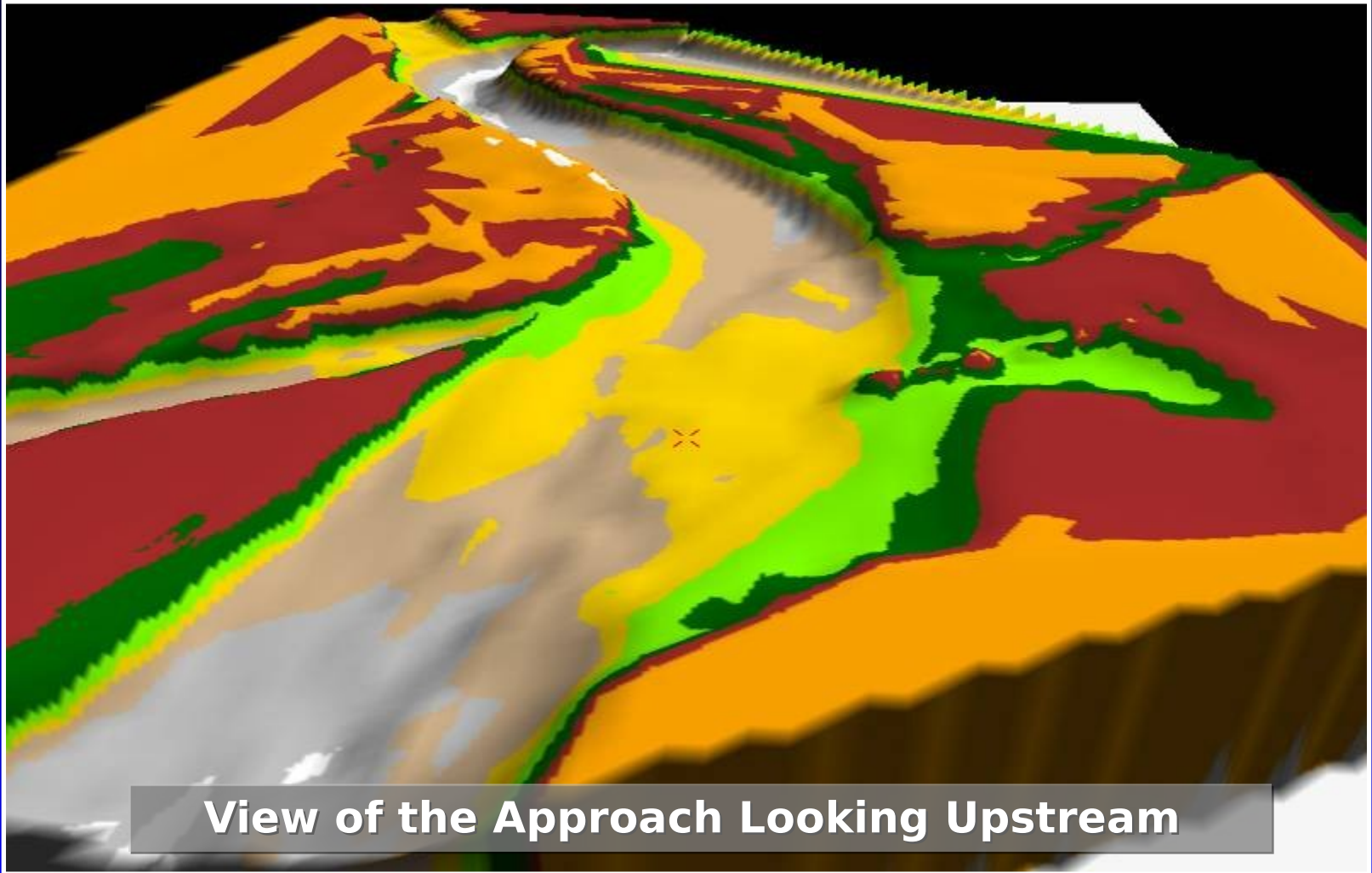
View of the Approach Looking Upstream



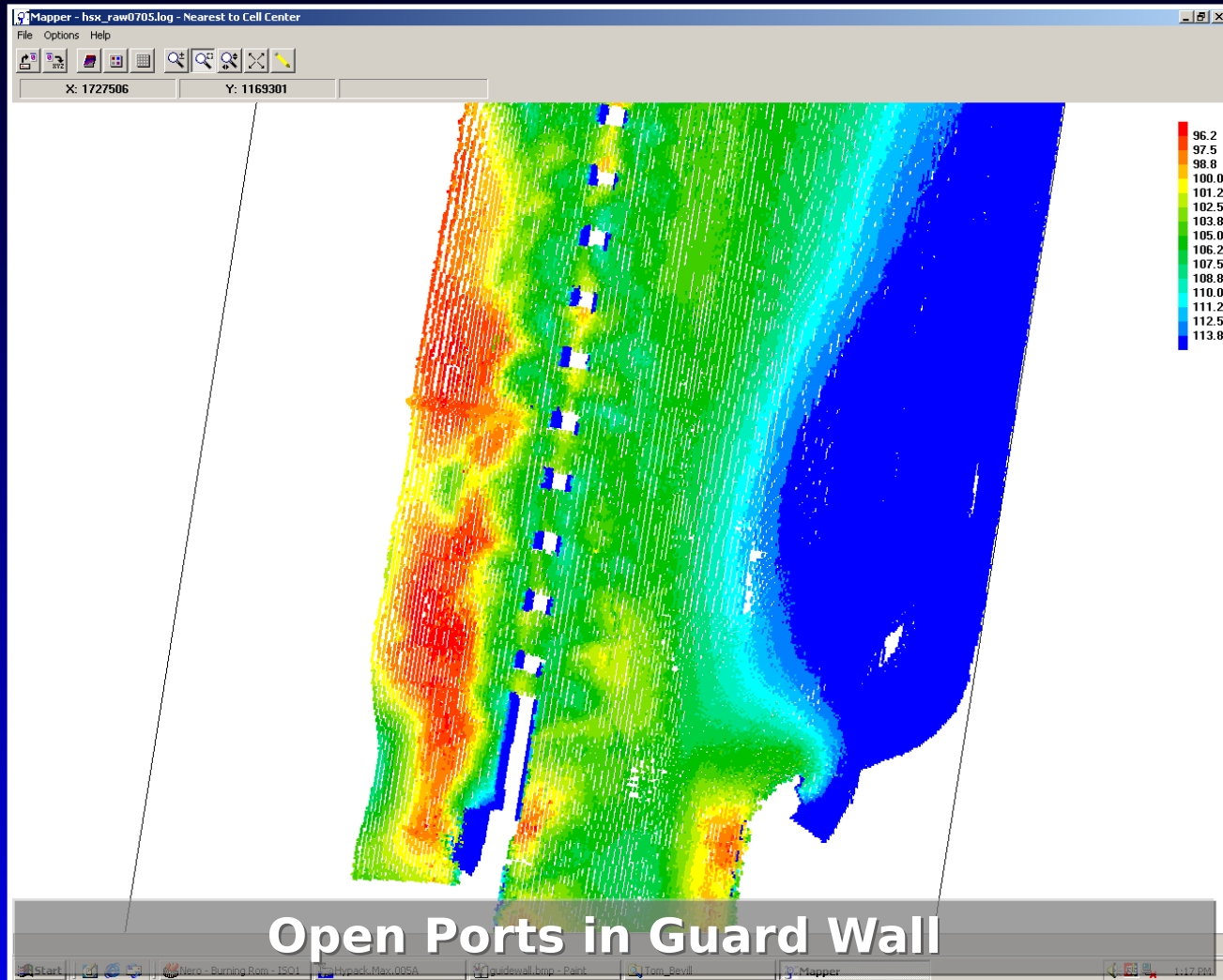
# Time Lapse Video - MCNP



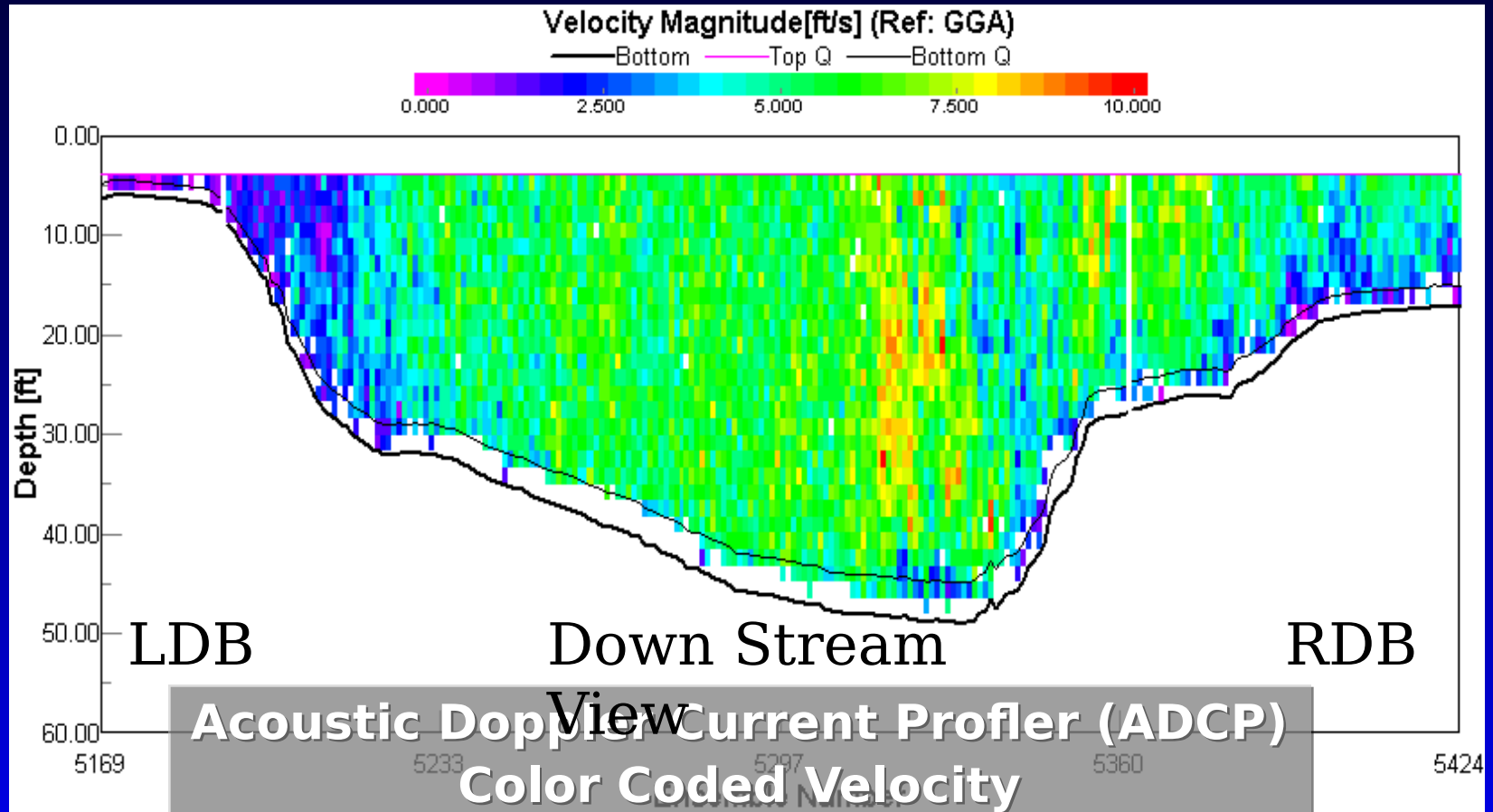
# Multibeam Survey of Approach MCNP



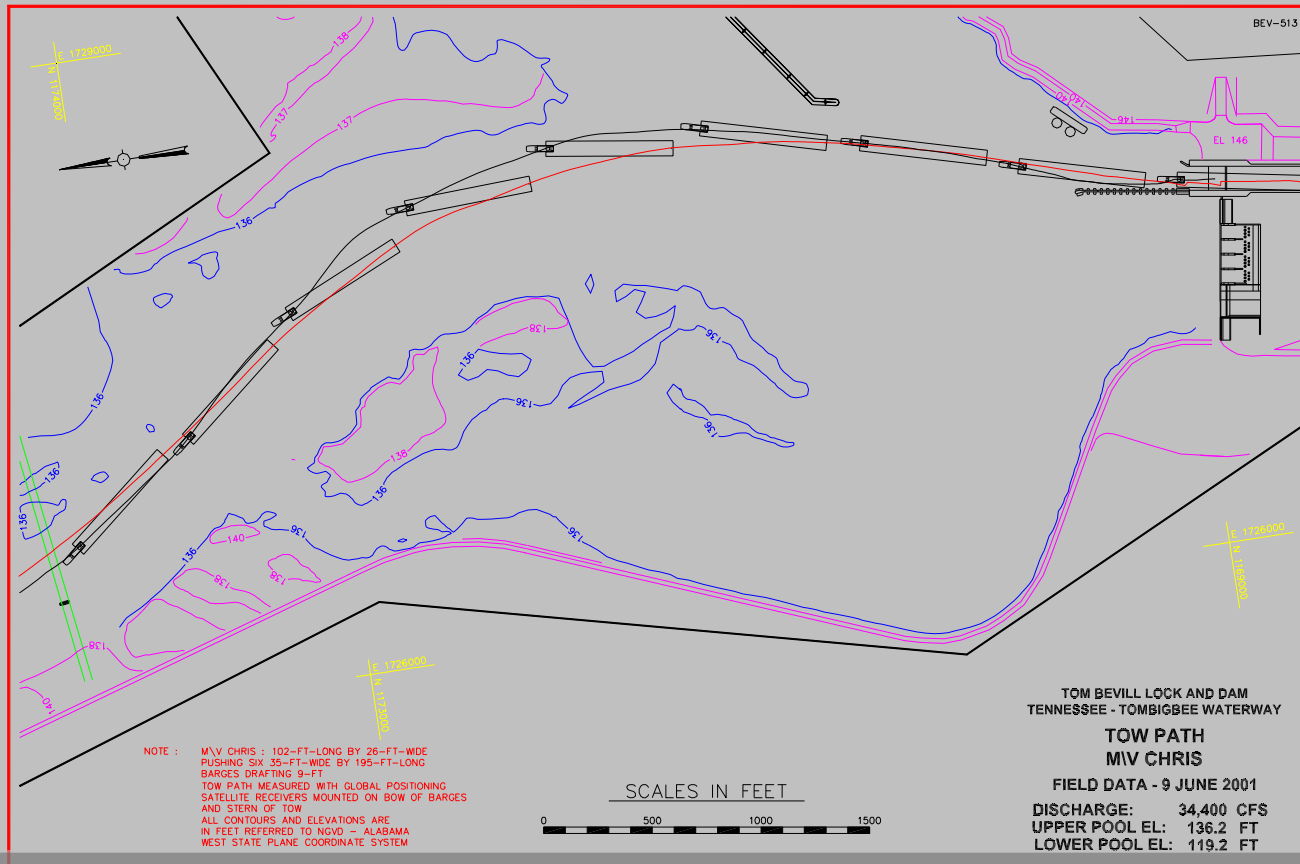
# Multibeam Survey of Guard Wall MCNP



# ADCP Survey - MCNP



# Prototype Tow Data - MCNP



Actual Tow Path



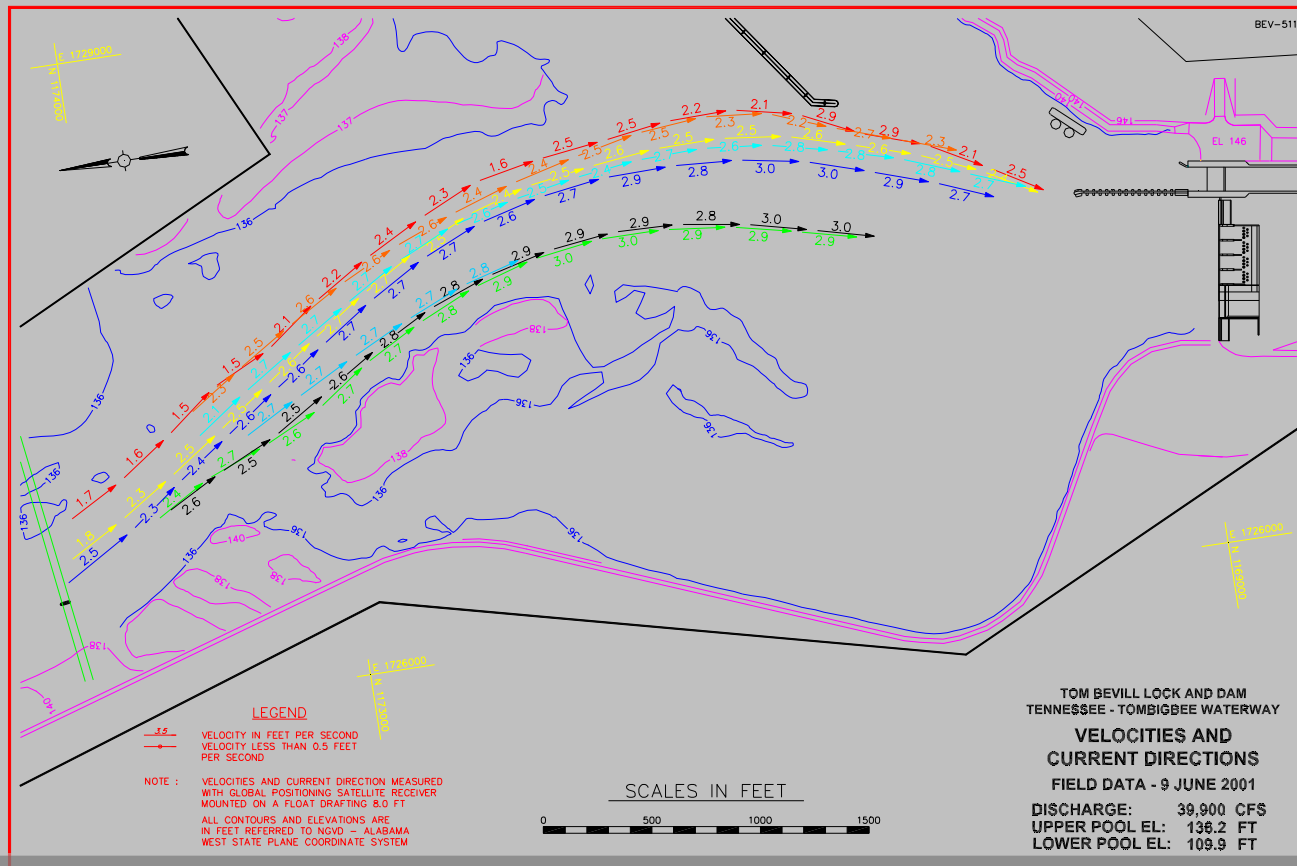
# Float Data - MCNP



Floats Used to Help Determine Currents



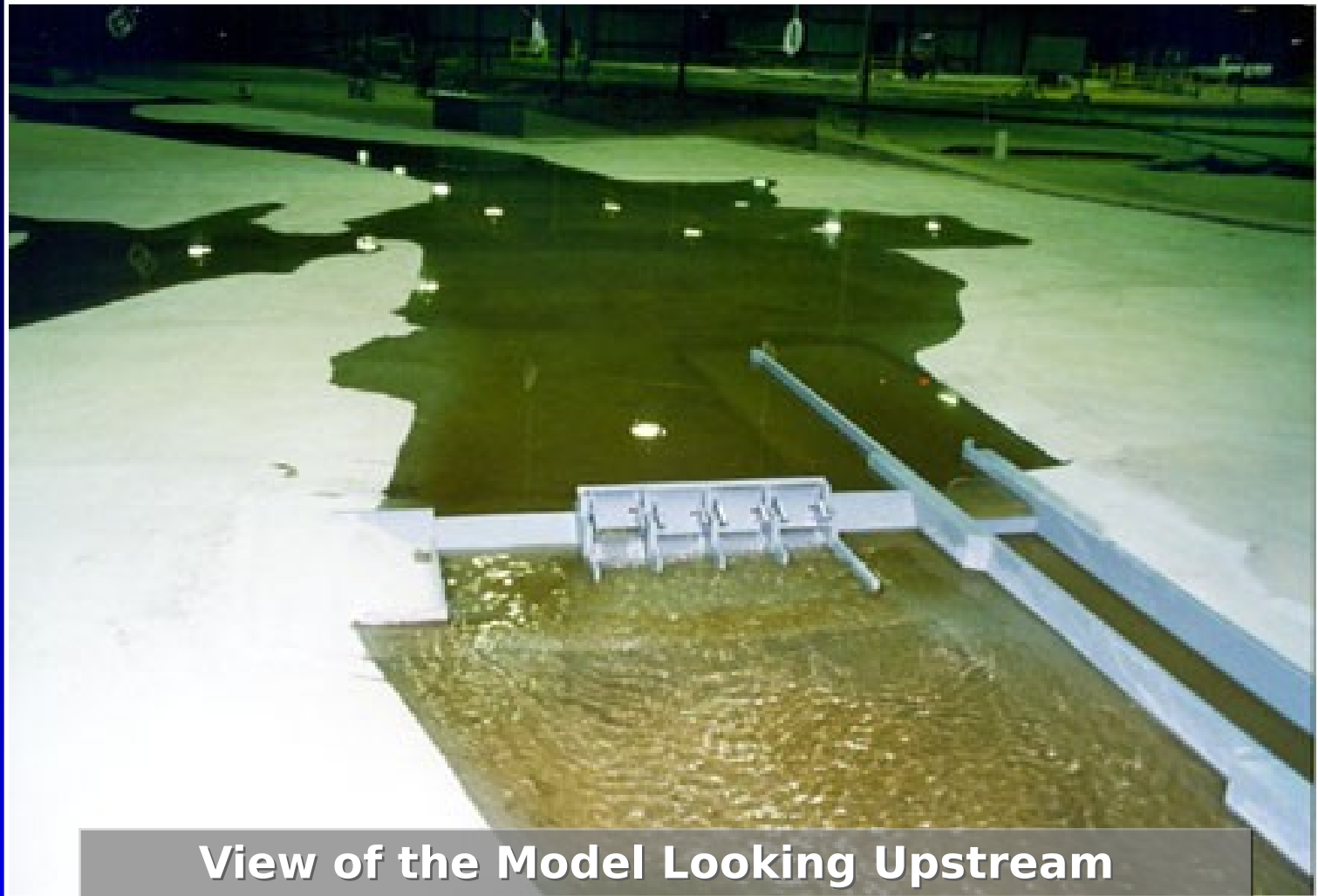
# Prototype Float Data - MCNP



## Results of Processed Float Data



# Tom Bevill Physical Model



# Tom Bevill - Confetti Picture



Figure 6 Upstream View of the Model



# Tom Bevill - Dye Picture



Figure 7. Dye plume **View of the Model Looking Upstream**



# Horizontal Acoustic Doppler Current Profilers



# Tom Bevill



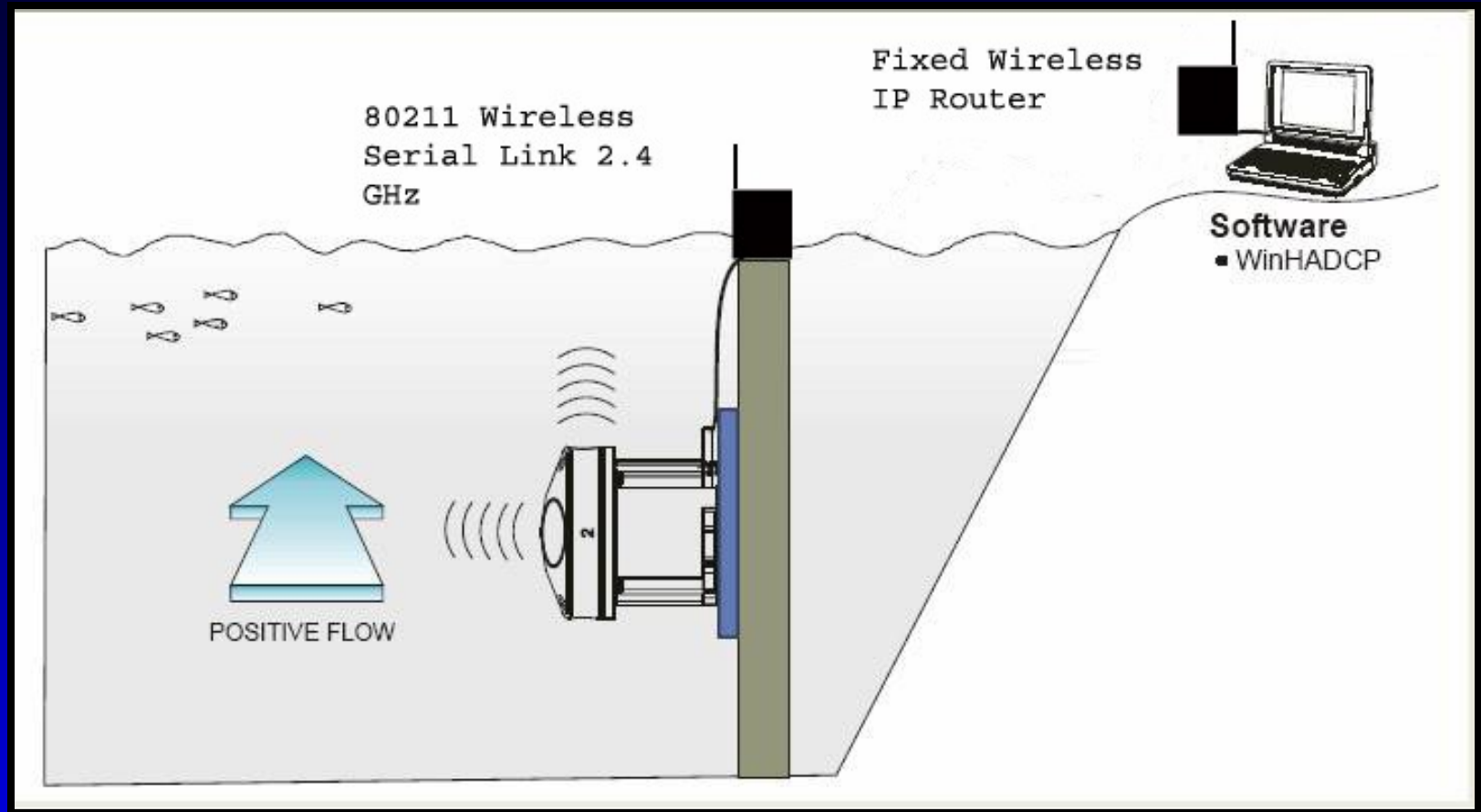
# Bull Nose Guard Wall



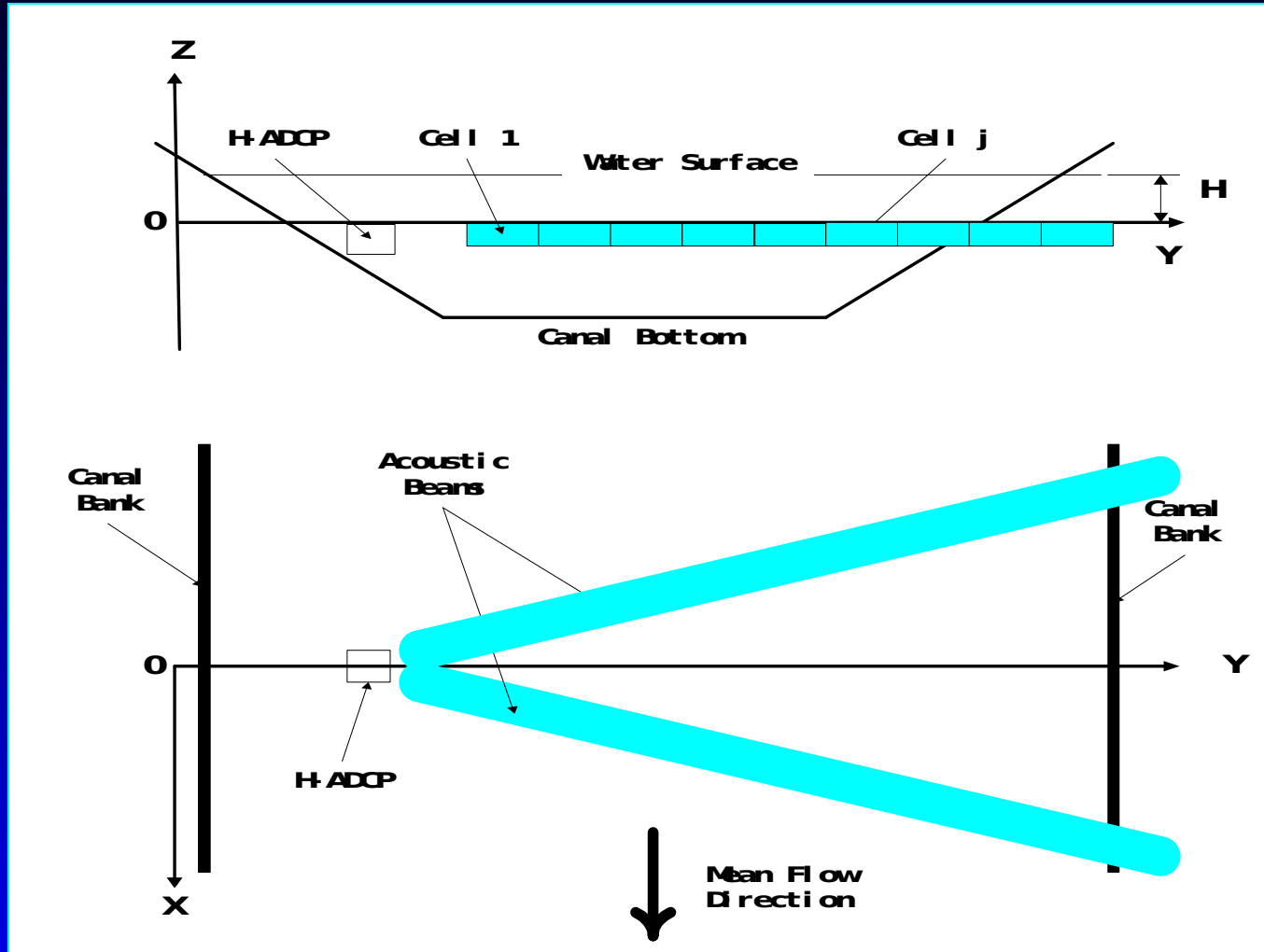
# Mounting Bracket



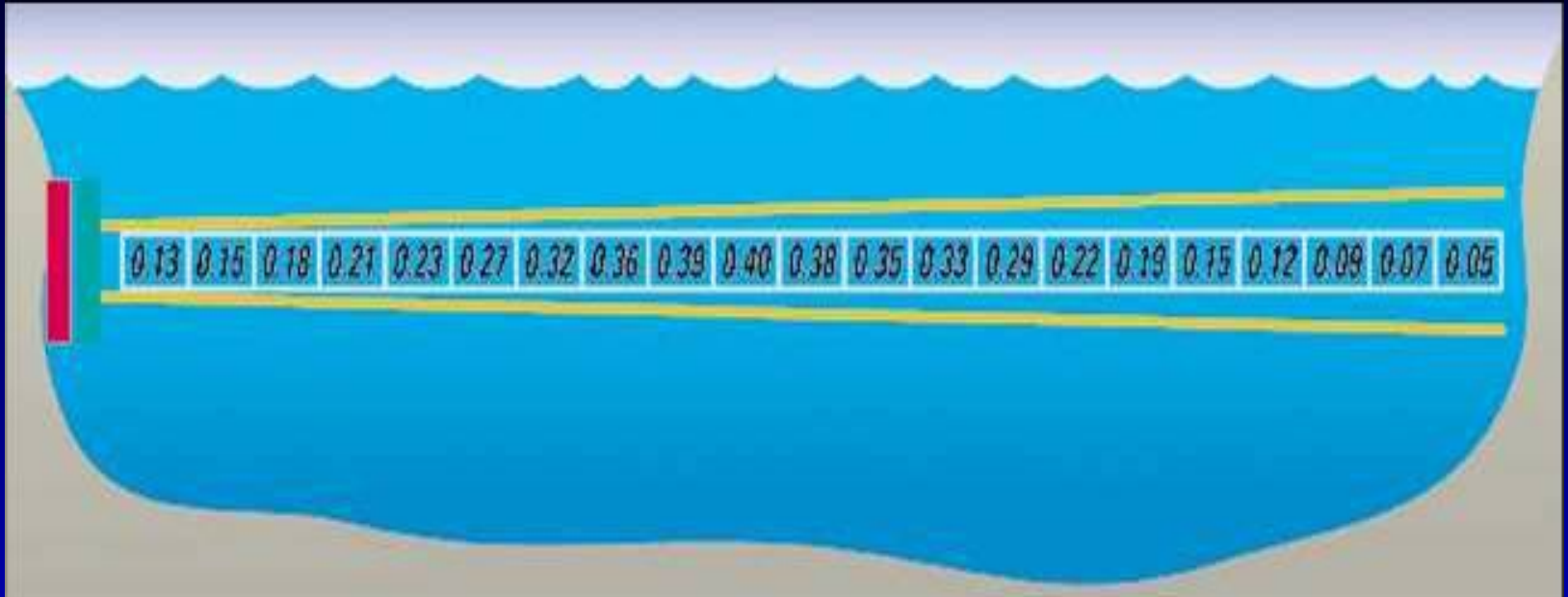
# Horizontal ADCP



# H-ADCP Operation



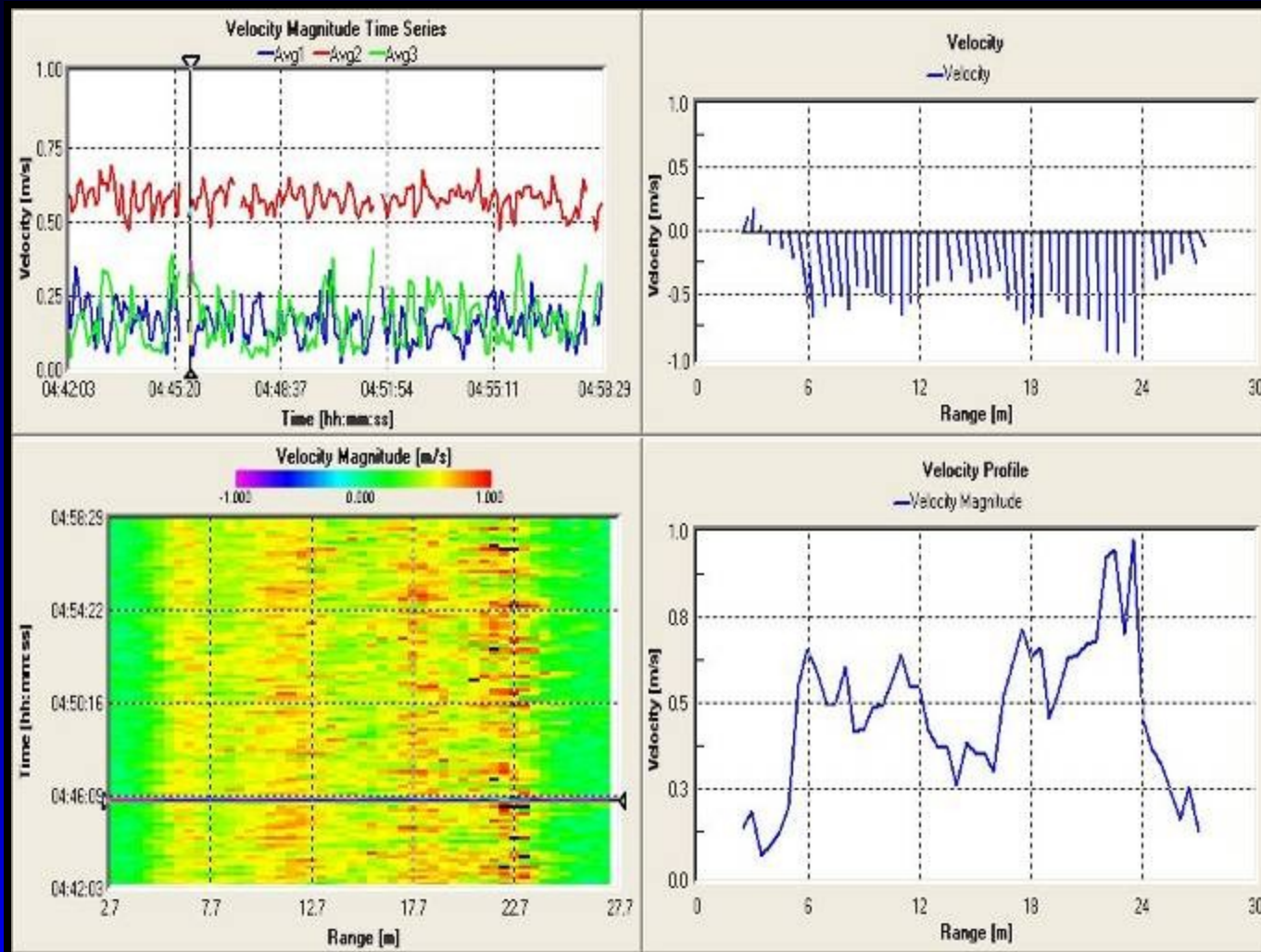
# ADCP Measurements



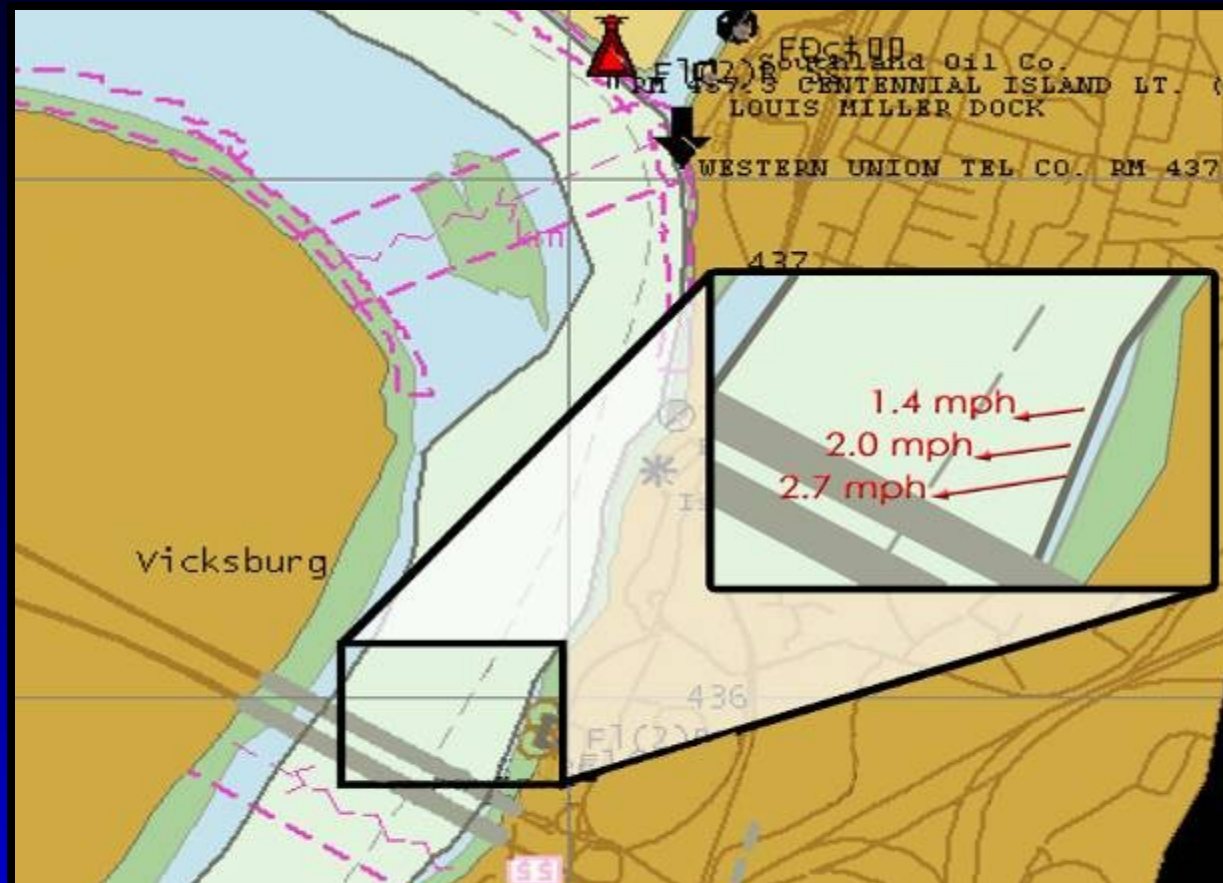
## Separate Velocity Measurements



# H-ADCP Output



# Velocities Displayed on IENC's



## Vicksburg Bridge



# General Discussion

- Which Locks
- Where (how far from the lock)
- Where (water column, cross section)
- When (only above certain stages)
- How accurate
  - Meters
  - Models
- How Timely
- How provide data (future meeting)
- Format (future meeting)



# Planning

- **Test Site for Demo Installation**
- **What next - future meeting on ...**
- **When/Where/how**
  
- **WRAP-UP**
  - **Notes - Summary**
    - **Navigation Systems Web Site**
    - **Presentation at Inland Waterways Conference**
    - **Notes in Capital Currents - National Waterways Conference web site**
  - **PowerPoints Available on Navigation Systems Web site**





# Questions

